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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/718,233 | 11/19/2003 | Jerome M. Klosowski | 27702/38513 | 9906 |

4743 7590 02/27/2006

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EXAMINER

POULOS, SANDRA K

ART UNIT PAPER NUMBER

1714

DATE MAILED: 02/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|--------------------------------------|-----------------------------------------|--|
| Office Action Summary | Application No. 10/718,233 | Applicant(s) KLOSOWSKI ET AL. | |
| | Examiner Sandra K. Poulos | Art Unit 1714 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-88 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-88 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date <u>7/30/2004; 9/13/2004; 11/14/2004</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The abstract of the disclosure is objected to because of legal phraseology "comprising". Examiner suggests replacing with "including" or "containing." Correction is required. See MPEP § 608.01(b).

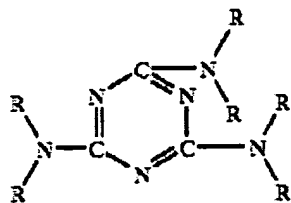
The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Objections

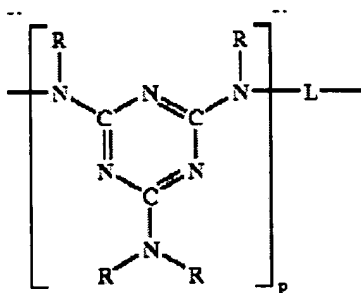
2. Claims 6-13, 18, 20, 22 and 35 are objected to because of the following informalities:
 - a. Claim 6-9, 11, and 12: The term "on average" is objected to. For example, at the top of page 40, the term "on average" in the phrase "on average, at least two" is unclear because it's not known if the if R must be two or more $-\text{CH}_2\text{-R}^1$ or if R is sometimes only one $-\text{CH}_2\text{-R}^1$.
 - b. Claim 10: There is no period at the end of claim 10 and it is unclear if both compounds are require or only one. Examiner suggests the following format:

"10. The composition of claim 9, wherein the adhesive resin is a compound of the formula:

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(V), or



(VI)."

- c. Claim 13: The parentheses in claim 13 are improper.
- d. Claim 18: Formula (I) is already defined as a different chemical in claim 1 and should not be re-used to define a different chemical in dependent claim 18. R¹ was also previously defined in claim 1.
- e. Claims 20 and 22: R¹ was previously defined in claim 1 and the R¹ in claims 20 and 22 are drawn to a different chemical.
- f. Claims 35 and 82 contain CAS# of the dimer, which is improper. Please replace with the name of the compound intended.

Appropriate correction is required.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA

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1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Five (5) obviousness-type double patenting rejections are set forth below.

Double Patenting, I

4. Claims 1-47, 49-58, 62-73, 77-88 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-58 of copending US Application No. 10/706,196 (published as US 2004/0127615).

Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

US Application No. 10/706,196 discloses a thermoplastic polymer or thermoplastic polymer alloy and adhesion promoter comprising an adhesive resin and an ester.

The differences between the present claims and the claims of 10/706,196 are (1) the present claims refer to a "sealant" while the claims of 10/706,196 refer to a "thermoplastic polymer" or "thermoplastic polymer alloy", (2) the claims of 10/706,196 do not refer to a "ceramic" substrate as such, and (3) does not disclose heating from 50-200°C.

Applicant's attention is drawn to M.P.E.P. § 804 where it is disclosed that "the specification can always be used as a dictionary to learn the meaning of a term in a

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patent claim.” *In re Boylan*, 392 F. 2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in the patent. *In re Vogel*, 422 F. 2d 438, 164 USPQ 619, 622 (CCPA 1970).

With respect to (1), the specification of 10/706,196 discloses that the thermoplastic alloy comprises a natural or synthetic rubber (pg 22) and that the thermoplastic can be an acrylic resin (pg 21). The specification of the current application gives examples of the material that is the sealant, such as butyl rubbers and acrylics (pg 3). Therefore, it would have been obvious that the “polymer alloy” and “thermoplastic polymer” in the claims of 10/706,196 can be the same material as the presently claimed “sealant” and thus, one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (2), the claims of 10/706,196 disclose a glass substrate and since ceramics are glasses of all types (evidence disclosed by Hawley’s Condensed Chemical Dictionary), one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (3), claim 58 of 10/706,196 discloses that the polymer is “heated to a temperature sufficient to melt” and page 33 of the disclosure indicates that the mixture is heated to 90°C and thus meets the temperature requirements presently claimed.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

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5. Claims 1-47, 49-58, 62-73, 77-88 are directed to an invention not patentably distinct from claims 1-58 of commonly assigned copending US Application No. 10/706,196. Specifically, although the conflicting claims are not identical, they are not patentably distinct for the reasons set forth in paragraph 4 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned copending US Application No. 10/706,196, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

Double Patenting, II

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6. Claims 1-47, 49-58, 62-73, 77-88 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-48 of copending US Application No. 10/706,386 (published as US 2004/0127616).

Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

US Application No. 10/706,386 discloses a vulcanized rubber composition comprising rubber, an adhesive resin, a vulcanizing agent, a reactive diluent, and esters.

The differences between the present claims and the claims of 10/706,386 are (1) the present claims refer to a "sealant" while the claims of 10/706,386 refer to a "rubber", (2) the claims of 10/706,386 do not refer to a "ceramic" substrate as such, and (3) does not disclose heating from 50-200°C.

Applicant's attention is drawn to M.P.E.P. § 804 where it is disclosed that "the specification can always be used as a dictionary to learn the meaning of a term in a patent claim." *In re Boylan*, 392 F. 2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in the patent. *In re Vogel*, 422 F. 2d 438, 164 USPQ 619, 622 (CCPA 1970).

With respect to (1), the specification of the current application gives examples of the material that is the sealant, such as butyl rubbers (pg 3) and butyl rubber is claimed in claim 50. Therefore, it would have been obvious that the "rubber" in the claims of

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10/706,386 can be the same material as the presently claimed "sealant" and thus, one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (2), the claims of 10/706,386 disclose a glass substrate in claim 48 and in the specification on page 5, and since ceramics are glasses of all types (evidence disclosed by Hawley's Condensed Chemical Dictionary) one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (3), the specification of 10/706,386 discloses that the rubber composition is heated to 100-200°C (page 25) and thus meets the temperature requirements presently claimed.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

7. Claims 1-47, 49-58, 62-73, 77-88 are directed to an invention not patentably distinct from claims 1-48 of commonly assigned copending US Application No. 10/706,386. Specifically, although the conflicting claims are not identical, they are not patentably distinct for the reasons set forth in paragraph 6 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned copending US Application No. 10/706,386, discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and

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the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications pending on or after December 10, 2004.

Double Patenting, III

8. Claims 1-47, 49-58, 62-73, 77-88 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-49 of US Patent 6,858,664. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

US 6,858,664 discloses a composition comprising rubber, adhesive resin, and esters of the formulae in claim 1. The adhesive resin is further specified using the formulae in the dependent claims.

The differences between the present claims and the claims of US 6,858,664 are (1) the present claims refer to a "sealant" while the claims of US 6,858,664 refer to a "rubber", (2) the claims of US 6,858,664 do not refer to a "ceramic" substrate as such, and (3) does not disclose heating from 50-200°C.

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Applicant's attention is drawn to M.P.E.P. § 804 where it is disclosed that "the specification can always be used as a dictionary to learn the meaning of a term in a patent claim." *In re Boylan*, 392 F. 2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in the patent. *In re Vogel*, 422 F. 2d 438, 164 USPQ 619, 622 (CCPA 1970).

With respect to (1), the specification of the current application gives examples of the material that is the sealant, such as butyl rubbers (pg 3) and butyl rubber is claimed in claim 50. Therefore, it would have been obvious that the "rubber" in the claims of US 6,858,664 can be the same material as the presently claimed "sealant" and thus, one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (2), the claims of US 6,858,664 disclose a glass substrate in claim 49 and in the specification (col 4, lines 12-19), and since ceramics are glasses of all types (evidence disclosed by Hawley's Condensed Chemical Dictionary) one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (3), the specification of US 6,858,664 discloses that the rubber composition is heated to 100-200°C (col 20) and thus meets the temperature requirements presently claimed.

9. Claims 1-47, 49-58, 62-73, 77-88 are directed to an invention not patentably distinct from claims 1-49 of commonly assigned US 6,858,664. Specifically, although

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the conflicting claims are not identical, they are not patentably distinct for the reasons set forth in paragraph 8 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned US 6,858,664 discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

Double Patenting, IV

10. Claims 1-47, 49-58, 62-73, 77-88 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-52

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of US Patent 6,969,737. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

US 6,969,737 discloses a composition comprising rubber, adhesive resin, and esters of the formulae in claim 1. The adhesive resin is further specified using the formulae in the dependent claims.

The differences between the present claims and the claims of US 6,969,737 are (1) the present claims refer to a "sealant" while the claims of US 6,969,737 refer to a "rubber", (2) the claims of US 6,969,737 do not refer to a "ceramic" substrate as such, and (3) does not disclose heating from 50-200°C.

Applicant's attention is drawn to M.P.E.P. § 804 where it is disclosed that "the specification can always be used as a dictionary to learn the meaning of a term in a patent claim." *In re Boylan*, 392 F. 2d 1017, 157 USPQ 370 (CCPA 1968). Further, those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in the patent. *In re Vogel*, 422 F. 2d 438, 164 USPQ 619, 622 (CCPA 1970).

With respect to (1), the specification of the current application gives examples of the material that is the sealant, such as butyl rubbers (pg 3) and butyl rubber is claimed in claim 50. Therefore, it would have been obvious that the "rubber" in the claims of US 6,969,737 can be the same material as the presently claimed "sealant" and thus, one of ordinary skill in the art would have arrived at the claimed invention.

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With respect to (2), the claims of US 6,969,737 disclose a glass substrate in claim 43 and in the specification (col 3, lines 61-67), and since ceramics are glasses of all types (evidence disclosed by Hawley's Condensed Chemical Dictionary) one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (3), the specification of US 6,969,737 discloses that the rubber composition is heated to 100-200°C (col 18) and thus meets the temperature requirements presently claimed.

11. Claims 1-47, 49-58, 62-73, 77-88 are directed to an invention not patentably distinct from claims 1-52 of commonly assigned US 6,969,737. Specifically, although the conflicting claims are not identical, they are not patentably distinct for the reasons set forth in paragraph 10 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned US 6,969,737 discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned

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at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

Double Patenting, V

12. Claims 1-47, 49-58, 62-73, 77-88 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-52 of US Patent 6,884,832. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following explanation.

US 6,884,832 discloses a composition comprising rubber, adhesive resin, and esters of the formulae in claim 1. The adhesive resin is further specified using the formulae in the dependent claims.

The differences between the present claims and the claims of US 6,884,832 are (1) the present claims refer to a "sealant" while the claims of US 6,884,832 refer to a "rubber", (2) the claims of US 6,884,832 do not refer to a "ceramic" substrate as such, and (3) does not disclose heating from 50-200°C.

Applicant's attention is drawn to M.P.E.P. § 804 where it is disclosed that "the specification can always be used as a dictionary to learn the meaning of a term in a patent claim." *In re Boylan*, 392 F. 2d 1017, 157 USPQ 370 (CCPA 1968). Further,

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those portions of the specification which provide support for the patent claims may also be examined and considered when addressing the issue of whether a claim in an application defines an obvious variation of an invention claimed in the patent. *In re Vogel*, 422 F. 2d 438, 164 USPQ 619, 622 (CCPA 1970).

With respect to (1), the specification of the current application gives examples of the material that is the sealant, such as butyl rubbers (pg 3) and butyl rubber is claimed in claim 50. Therefore, it would have been obvious that the "rubber" in the claims of US 6,884,832 can be the same material as the presently claimed "sealant" and thus, one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (2), the claims of US 6,884,832 disclose a glass substrate in claims 39 and 43 and in the specification (col 4, lines 3-10), and since ceramics are glasses of all types (evidence disclosed by Hawley's Condensed Chemical Dictionary) one of ordinary skill in the art would have arrived at the claimed invention.

With respect to (3), the specification of US 6,884,832 discloses that the rubber composition is heated to 100-200°C (col 18) and thus meets the temperature requirements presently claimed.

13. Claims 1-47, 49-58, 62-73, 77-88 are directed to an invention not patentably distinct from claims 1-46 of commonly assigned US 6,884,832. Specifically, although the conflicting claims are not identical, they are not patentably distinct for the reasons set forth in paragraph 12 above.

The U.S. Patent and Trademark Office normally will not institute an interference between applications or a patent and an application of common ownership (see MPEP § 2302). Commonly assigned US 6,884,832 discussed above, would form the basis for a rejection of the noted claims under 35 U.S.C. 103(a) if the commonly assigned case qualifies as prior art under 35 U.S.C. 102(e), (f) or (g) and the conflicting inventions were not commonly owned at the time the invention in this application was made. In order for the examiner to resolve this issue, the assignee can, under 35 U.S.C. 103(c) and 37 CFR 1.78(c), either show that the conflicting inventions were commonly owned at the time the invention in this application was made, or name the prior inventor of the conflicting subject matter.

A showing that the inventions were commonly owned at the time the invention in this application was made will preclude a rejection under 35 U.S.C. 103(a) based upon the commonly assigned case as a reference under 35 U.S.C. 102(f) or (g), or 35 U.S.C. 102(e) for applications filed on or after November 29, 1999.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claims 6-17, 21 and 54-76 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6, 14-17, and 21 recite "derivatives" which is indefinite since metes and bounds of coverage sought by applicant are unclear.

Claim 13 recites an improper Markush groups. Please amend to "selected from the group consisting of..." rather than "selected from...".

Claims 54 and 69 recite "an ester having formula I, II, III, IV or mixtures" but there are no formulae labeled as such in the claim and therefore is unclear what is being referred to.

Claims 7-12, 55-68, and 70-76 are rejected under 35 U.S.C. 112, second paragraph, as being dependent upon a rejected base claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

14. Claims 69-73 are rejected under 35 U.S.C. 102(b) as being anticipated by Honda et al (US 3,968,198).

Honda discloses a method for improving the adhering ability of a vulcanized rubber surface (abstract). The rubbers include isobutylene-isoprene copolymeric rubber, polychloroprene, and the like (col 7). The composition includes adhesives such as phenol-aldehyde resins and melamine-formaldehyde resins (col 8, lines 7-12). The adhesives may also be polyurethane resins or epoxy resins which are effective in

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bonding to metals, ceramic, glasses, fibers, and resins (col 8, lines 25-36; col 9, lines 34-41). Fillers such as silica and calcium carbonate may be added (col 8, lines 49-61). The dibasic saturated fatty acid ester (III) is used in amounts of 5-300 parts by weight and corresponds to formula (II) of the present claims (col 12, lines 49-68; col 13, lines 1-2; col 28, lines 1-8). The composition is useful as a sealing agent (col 15, lines 28-35).

Therefore, Honda anticipates the cited present claims.

Claims 69, 72, 73, and 77 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 1022306.

EP 1022306 discloses a vulcanized rubber composition comprising 0.2 to 20 parts (preferably 0.5 to 5 parts) of an ester compound obtained by reaction of alcohols with a fatty acid (para 13, 15, 17-19, 30). The rubber can be natural rubber, styrene butadiene rubber, polybutadiene rubber, and isoprene rubber or combinations (para 16). The rubber composition is excellent in adhesion between vulcanized rubber and steel and the like without deteriorating mechanical properties after vulcanization and has good processability (para 1). The alcohols used in the composition include 2-ethylhexyl alcohol and oleyl alcohol (para 23-29). The fatty acid includes castor oil fatty acid or safflower oil fatty acid (para 19-22). Castor oil is mainly comprised of a C₁₈ unsaturated fatty acid. The benefits of using the ester of a fatty acid are discussed in paragraphs 35-39. The composition is inherently a sealant because of its adhesive properties and ability to form a bond with the substrate.

Therefore, EP 1022306 anticipates the cited present claims.

Claims 1-4, 54, 57, 58, 69, 72, 73, 77-80 are rejected under 35 U.S.C. 102(b) as being anticipated by EP 73174.

EP 73174 discloses a composition for adhesion of metals and/or fibers to elastomers (pg 1). EP 73174 discloses esters that include dially, trially, and trimethylol esters. The diallyl esters such as diallyl sebacate include C₃ moieties and anticipated the currently claimed ester in formula II (pg 2). The esters are included in amounts of 0.1 to 10 phr (pg 2). The rubbers include polychloroprene and butyl rubber (pg 4). Tackifying resin, resorcinol and hexamethoxy methyl melamine are ingredients in the composition (pg 7) and the amounts are given in Table 7.

Therefore, EP 73174 anticipates the cited present claims.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 54-58 and 77-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Honda et al (US 3,968,198).

The discussion with respect to Honda in paragraph 14 above is incorporated herein by reference.

Honda discloses that the ester is present in amount of 5-300 phr. The currently claimed range is 0.1-15. It would have been obvious to one of ordinary skill in the art that the lower range of Honda overlaps the currently claimed range and at around 5 phr Honda discloses the currently claimed invention.

Claims 59-61 and 74-76 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 73174 in view of Gregory (US 4,317,755).

The discussion with respect to EP 73174 in paragraph *** above is incorporated herein by reference.

EP 73174 does not expressly disclose concrete or asphalt substrates.

Gregory discloses a sealing composition that is used as a protective coating on such substrates as cement, concrete surfaces, and asphalt (abstract; col 8, lines 26-39).

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The composition comprises an emulsion polymer and 5-10% ester plasticizer (col 7, lines 18-43; examples).

It would have been obvious to one of ordinary skill in the art to use the composition disclosed by EP 73174 on a substrate such as concrete or asphalt because Gregory discloses that such sealing compositions give improved properties to floors made from concrete and asphalt (col 1 and 8).

16. Claims 1-4, 6-8, 10, 13, 14, 18-22, 24, 42, 44, 45, 54, 58, 62, 66-69, 73, 77-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Sidocky et al (US 5,985,963) in view of Oshiyama et al (US 4,789,381).

D'Sidocky discloses rubber compositions that exhibit good adhesion properties to aramid reinforcements in the tire (abstract, col 1, lines 5-15). The composition comprises natural and synthetic rubbers such as polyisoprene, polychloroprene, and butyl rubber (col 2, lines 61-67; col 3, lines 1-43). The composition is intrinsically a sealant because of its adhesive properties and ability to form a bond with the substrate.

The composition comprises an adhesive resin that is a condensate of methylene donor and acceptor. Acceptors include phenolic resins such as novolak and donor comprises amine such as melamines having formula IV which correspond to the presently claimed (col 7). Methylene donor is present from 0.1-10 phr (col 7, lines 47-51) and can be N-substituted oxymethylmelamines (col 7, lines 20-40). Additionally, Table 1 discloses methylene ester of rosin wherein rosin has 19 carbon atoms.

Although ester of rosin is disclosed as a tackifier, its adhesive properties are intrinsic to

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the compound since tackifiers have adhesive properties. Fillers include calcium silicate (col 3, lines 57-65). The vulcanization of the rubber composition is carried out at temperatures ranging from 100 to 200°C (col 6, lines 13-17). The composition is heated to 150°C in the example.

D'Sidocky does not disclose esters that meet the requirements of the formulae in the present claims.

Oshiyama discloses a fiber treating process for which is suitable for tire cords (abstract; col 4, lines 16-22). The fiber is pretreated with ester that is the reaction product of polybasic carboxylic acid and alcohol of formula 1 (abstract; col 2). The repetitive units (AO) is zero in the examples of alcohols given in Table 1. Furthermore, Oshiyama discloses polybasic acids including adipic and sebacic acid (col 1, lines 40-45). Thus, the formulae in Table 1 satisfy the esters in formula 1-2 of the present invention.

The composition of Oshiyama uses esters to pre-treat the fibers that are later used in tire cords. It is well settled that it is *prima facie* obvious to combine two ingredients, each of which is targeted by the prior art to be useful for the same purpose. *In re Lindner* 457 F,2d 506,509, 173 USPQ 356, 359 (CCPA 1972).

In light of the above, it would have been obvious to one of ordinary skill in the art to use the esters of Oshiyama in the composition disclosed by D'Sidocky and thereby obtained the presently cited claims. Use of the esters of Oshiyama would still provide a composition having good adhesion properties to the aramid cords.

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17. Claims 5 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Sidocky in view of Oshiyama as applied to claims 1-4, 6-8, 10, 13, 14, 18-22, 24, 42, 44, 45, 54, 58, 62, 66-69, 73, 77-80 above, and further in view of Solomon (US 4,448,813).

The discussion with respect to the disclosures of D'Sidocky and Oshiyama in paragraph 16 above is incorporated herein by reference.

The composition disclosed by D'Sidocky in view of Oshiyama does not disclose the use of resorcinol-formaldehyde resins.

Solomon discloses adhesive activated polyester cord, or an aramid cord, treated with polyisocyanate, a resorcinol-formaldehyde condensate, a rubber latex, and an acrylic resin (col 3, lines 63-68). Solomon discloses the use of melamines and resorcinol formaldehyde resin wherein the condensation product is an adhesive resin.

It would have been obvious to one of ordinary skill in the art to additionally use resorcinol formaldehyde resin as the adhesive resin because Solomon discloses that the resin is beneficial to the process of making tires that are made with cords treated with resorcinol-formaldehyde resin.

18. Claims 46-50, 64, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over D'Sidocky in view of Oshiyama as applied to claims 1-4, 6-8, 10, 13, 14, 18-22, 24, 42, 44, 45, 54, 58, 62, 66-69, 73, 77-80 above, and further in view of Huynh-Tran et al (US 2003/0166743).

The discussion with respect to D'Sidocky and Oshiyama in paragraph 16 above is incorporated herein by reference.

D'Sidocky and Oshiyama do not expressly disclose reactive diluents.

Huyuh-Tran discloses an adhesive system for good bonding between polyester tire cords and rubber compounds that contain resorcinol-formaldehyde latex (para 4-5) or hexamethylenetetramine and resorcinol/phenol type resins (para 10). Surface modification agents such as glycidyl ether promote the adhesion properties of the cords and tire and are present from about 0.1 to 10 phr (para 30). N-substituted oxymethyl melamines and derivatives or triazine resins may also be used (para 33). The rubbers used in the composition must be free of rubbers having a molecular weight greater than 20,000 (para 20, 34)

It would have been obvious to use the surface modification agents disclosed by Huynh-Tran in the composition disclosed in D'Sidocky and Oshiyama and to use rubbers having a MW less than 20,000 in order to increase the adhesion properties of the composition and thereby arrive at the presently claimed invention.

19. Claims 1-4, 6-8, 10, 13, 14, 18-22, 24, 26-27, 29, 42, 54, 57, 58, 62, 66-69, 72, 73, 77-80 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singh et al (US 5,298,539) in view of EP 1022306.

Singh discloses additives for improving tire cord adhesion and toughness of vulcanized rubber compositions using derivatives of melamine, acetoguanamine, and benzoguanamine (abstract; col 1, lines 33-45). Melamine based derivatives and

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glycoluril oligomers have the formulae given in columns 2-3. The adhesion promoter additives are present in the range of 0.2 to 10 phr (col 4, lines 8-11). The rubber is natural or synthetic rubber such as polyisoprene, polychloroprene, and polybutadiene, with a vulcanizing agent such as sulfur (col 4, lines 11-15). The composition can be used with resorcinol or without (col 1, lines 16-20; col 4, lines 55-66). The composition can be used to improve rubber products made with fabrics or polyester or steel cords (col 19, lines 17-31). The composition is intrinsically a sealant because of its adhesive properties and ability to form a bond with the substrate. The composition is heated up to 140°C and in the second mixing step has a temperature of 90-100°C (col 5, lines 3-10).

Singh does not expressly disclose (1) a flat metal stock substrate, or (2) esters that meet the requirements of the formulae in the present claims.

With respect to (1), Singh discloses that the substrate can be steel cords. It would have been obvious to one of ordinary skill that the substrate could be a metal of different shape, such as a flat sheet rather than a cord since the adhesion to the metal would remain unchanged.

With respect to (2), EP 1022306 discloses a vulcanized rubber composition comprising 0.2 to 20 parts (preferably 0.5 to 5 parts) of an ester compound obtained by reaction of alcohols with a fatty acid (para 13, 15, 17-19, 30). The rubber can be natural rubber, styrene butadiene rubber, polybutadiene rubber, and isoprene rubber or combinations (para 16). The rubber composition is excellent in adhesion between vulcanized rubber and steel and the like without deteriorating mechanical properties after vulcanization and has good processability (para 1). The alcohols used in the

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composition include 2-ethylhexyl alcohol and oleyl alcohol (para 23-29). The fatty acid includes castor oil fatty acid or safflower oil fatty acid (para 19-22). Castor oil is mainly comprised of a C₁₈ unsaturated fatty acid. The benefits of using the ester of a fatty acid are discussed in paragraphs 35-39.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the ester fatty acid of EP 1022306 into the composition of Singh in order to improve adhesion to rubber composition, which is a common objective for both references. Furthermore, it is well settled that it is *prima facie* obvious to combine two ingredients, each of which is targeted by the prior art to be useful for the same purpose. *In re Lindner* 457 F.2d 506,509, 173 USPQ 356, 359 (CCPA 1972).

20. Claims 5 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singh et al (US 5,298,539) in view of EP 1022306 as applied to claims 1-4, 6-8, 10, 13, 14, 18-22, 24, 26-27, 29, 42, 54, 57, 58, 62, 66-69, 72, 73, 77-80 above, and further in view of Solomon (US 4,448,813).

The discussion with respect to the disclosures of Singh and EP 1022306 in paragraph 19 above is incorporated herein by reference.

The composition disclosed by Singh in view of EP 1022306 does not disclose the use of resorcinol-formaldehyde resins.

Solomon discloses adhesive activated polyester cord, or an aramid cord, treated with polyisocyanate, a resorcinol-formaldehyde condensate, a rubber latex, and an

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acrylic resin (col 3, lines 63-68). Solomon discloses the use of melamines and resorcinol formaldehyde resin wherein the condensation product is an adhesive resin.

It would have been obvious to one of ordinary skill in the art to additionally use resorcinol formaldehyde resin as the adhesive resin because Solomon discloses that the resin is beneficial to the process of making tires that are made with cords treated with resorcinol-formaldehyde resin.

21. Claims 46-49, 64, and 65 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singh et al (US 5,298,539) in view of EP 1022306 as applied to claims 1-4, 6-8, 10, 13, 14, 18-22, 24, 26-27, 29, 42, 54, 57, 58, 62, 66-69, 72, 73, 77-80 above, and further in view of Huynh-Tran et al (US 2003/0166743).

The discussion with respect to the disclosures of Singh and EP 1022306 in paragraph 19 above is incorporated herein by reference.

Singh and EP 1022306 do not expressly disclose reactive diluents.

Huynh-Tran discloses an adhesive system for good bonding between polyester tire cords and rubber compounds that contain resorcinol-formaldehyde latex (para 4-5) or hexamethylenetetramine and resorcinol/phenol type resins (para 10). Surface modification agents such as glycidyl ether promote the adhesion properties of the cords and tire and are present from about 0.1 to 10 phr (para 30). N-substituted oxymethyl melamines and derivatives or triazine resins may also be used (para 33). The rubbers used in the composition must be free of rubbers having a molecular weight greater than 20,000 (para 20, 34)

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It would have been obvious to use the surface modification agents disclosed by Huynh-Tran in the composition disclosed in Singh and EP 1022306 and to use rubbers having a MW less than 20,000 in order to increase the adhesion properties of the composition and thereby arrive at the presently claimed invention.

Conclusion

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Leo et al (US 4,263,184) discloses a composition is used as a reinforcement and in synthetic cord and fabric to increase modulus and tensile strength in tires comprised of rubbers or plastics such as polyvinyl chloride with plasticizers including esters of sebacic and adipic acids. Adhesion promoters can be added to the mixture to enhance adhesion between the fibrous material and rubber or plastic compound such as resorcinol-formaldehyde.

Marhevka et al (US 5712039) discloses reactive diluents with epoxy adhesives.

Hopper et al (US 5,777,014) discloses a PVC resin composition with diacid plasticizers in amounts greater than 20 phr.

Hawley's Condensed Chemical Dictionary: definition of butyl rubber and "sealant".

22. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sandra K. Poulos whose telephone number is (571) 272-6428. The examiner can normally be reached on M-F 7:30-4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SKP

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2/17/06

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